

REMARKS

Claims 1-17, 21-26, and 27-29 remain in this application. Claims 18-20 have been canceled. Applicant reserves the right to pursue the canceled claims in a continuation and/or divisional application. Claims 4 and 5 have been amended for clarity without altering their scope. Claims 27-29 have been added. Claims 27 and 28 depend from claim 1 and add additional features found on page 6, second paragraph and elsewhere in the specification. Claim 29 is an independent claim for a ribbon beam ion implantation system and includes subject matter found on pages 6-7 and elsewhere in the specification.

I. CLAIM REJECTIONS UNDER 35 U.S.C. § 112.

Claim 5 is rejected under 35 U.S.C. § 112 second paragraph. Claim 5 and claim 4, from which claim 5 depends, have been amended. Accordingly, withdrawal of this rejection is respectfully requested.

II. CLAIM REJECTIONS UNDER 35 U.S.C. § 102.

Claims 1-5, 10, 14-17 and 21-26 are rejected under 35 U.S.C. § 102(b) as being anticipated by King et al. (US 5,760,405). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Claim 1 recites a mass analyzer comprised of a first permanent magnet and a second permanent magnet that generates a substantially uniform magnetic field across a beam path of the ribbon-shaped ion beam, which is not taught by King et al.

Claim 1, and claims 2-5, 10, and 14-17 by dependency, employ a mass analyzer comprised of first and second permanent magnets that *generate a substantially uniform magnetic field across a beam path* of the ribbon-shaped ion beam, whereas King et al. disclose a plasma chamber 41 that employs a magnetic assembly 48 to reduce the amount of secondary ions that subsequently become extracted with primary ions into an

ion beam. (Column 9, lines 22-33). King et al. do not teach generating a magnetic field *across a path of an ion beam* for selection, but instead generate the magnetic field within an ion source 18 *prior to extraction and formation* of an ion beam. (Column 9, lines 1-8). The magnetic assembly 48 taught by King et al. does comprise multiple permanent magnets (Column 9, line 4). However, the magnets 48 are employed to generate a magnetic field that forces the more energetic electrons to remain in region 52 (plasma pool) and thus, cause the secondary ions to remain in the plasma pool. As a result, the generated magnetic field forces away secondary ions into plasma pool 52 that limits the number of secondary ions (examples of 70% to 90% primary and remaining secondary are given) that become extracted into the ion beam (Column 9, lines 22-33). Thus, King et al. disclose an ion source 18 that includes a plasma chamber and magnets positioned therein for separating primary ions of the plasma from secondary ions *within the plasma* (Abstract) and not a mass analyzer comprised of a first and second permanent magnets that generate a substantially uniform magnetic field *across a beam path* of a ribbon shaped ion beam to select a species from multiple species *within an ion beam*. Accordingly, King et al. do not anticipate claim claims 1-5, 10, and 14-17.

Claim 21 recites selecting a species and rejecting other species of the multiple species of the ion beam via a permanent magnet based mass analyzer.

Claims 21 and 22-26 by dependence include the above limitation not taught by King et al. As stated above, King et al. teaches employing magnets within an ion source to separate primary ions from secondary ions *within plasma*, and then *extracting the primary ions into an ion beam*. In contrast, claim 21 teaches extracting *multiple* ion species to form an ion beam and *selecting a species* and rejecting other species of the multiple species *of the ion beam*. Additionally, the selection taught in King et al. is performed prior to extraction (beam formation) whereas the selection of claim 21 is performed after extraction on the ion beam itself. For at least the above reasons, King

et al. do not anticipate claims 21 and 22-26 and withdrawal of this rejection is respectfully requested.

III. CLAIM REJECTIONS UNDER 35 U.S.C. § 103.

Claims 9 and 11-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over King et al. in view of Sugitani et al (US 6,573,517). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Sugitani et al. fail to cure the deficiencies of King et al.

The Office Action states that King et al. disclose the claimed invention except for boron, BF₃, PF₅, and As₅. Claims 9 and 11-13 depend from claim 1, and, therefore include all the limitations of claim 1. Applicant has demonstrated King et al. fail to teach all of the elements of claim 1, and therefore also fail to teach all the elements of claims 9 and 11-13, which depend from claim 1, as shown above. Sugitani et al merely suggest extracting ions with a relatively high extraction voltage and decelerating them down to the desired energy by a reverse electric field. Sugitani et al do nothing to cure the identified deficiencies of King et al. Accordingly, withdrawal of this rejection of claims 9 and 11-13 is respectfully requested.

IV. CLAIM REJECTIONS UNDER 35 U.S.C. § 103.

Claims 6-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over King et al. Withdrawal of this rejection is respectfully requested for at least the following reasons.

A prima facie case of obviousness requires that the references, when combined, teach or suggest all of the elements. Claims 6-8 depend from claim 1, which Applicant has shown is not taught by King et al. Claims 6-8 necessarily include the limitations of claim 1 and, as a result, all of the elements of claims 6-8 are not taught by King et al. Additionally, claim 6 includes wherein the magnetic field generated by the mass analyzer has a length of about 5 cm *through which the ion beam travels*. King et al.

does not teach or suggest moving an ion beam through a magnetic field. Instead, King et al. disclose an ion source that includes a plasma chamber and magnets positioned therein for separating primary ions of the plasma from secondary ions *within the plasma*. (Abstract). Accordingly, withdrawal of this rejection for claims 6-8 is respectfully requested.

V. CONCLUSION

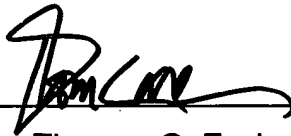
For at least the above reasons, pending claims currently under consideration are believed to be in condition for allowance and notice thereof is requested.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, EATNP139US.

Respectfully submitted,
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CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: September 29, 2005


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